



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/567,269

02/06/2006

Hiroyuki Kishino

BY0030P

4530

210 7590 07/31/2008
MERCK AND CO., INC
P O BOX 2000
RAHWAY, NJ 07065-0907

EXAMINER

RAHMANI, NILOOFAR

ART UNIT

PAPER NUMBER

1625

MAIL DATE

DELIVERY MODE

07/31/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/567,269	Applicant(s) KISHINO ET AL.	
	Examiner NILOOFAR RAHMANI	Art Unit 1625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02/06/20068.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-28,30 and 34-38 is/are rejected.
- 7) ☒ Claim(s) 29 and 31-33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/18/2006 and 04/21/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 20-38 are pending in the instant application and claims 1-19 are cancelled.

Priority

2. This application was filed on 02/06/2006, which is a 371 of PCT/JP2004/011945, filed on 08/13/2004, which claims priority of JAPAN 2003-207632, filed on 08/15/2003.

The claimed benefit of priority date on 08/15/2003 is denied. There is no certified translation of the priority document. The filing dated of the instant application is 08/13/2004.

3. *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 34 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. There is no product in the steps 1 and 2. What is the product from amidating of formula [II] and [III]? What is the product of formula [IV] and the product form the step 1? Correction is required.

4. *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 35-38 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for inhibition of binding of melanin concentrating hormone receptor, does not reasonably provide enablement for treat and prevent any and all diseases mediated by this receptor. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is “undue”. These factors include 1) the breadth of the claims, 2) the nature of the invention, 3) the state of the prior art, 4) the level of one of ordinary skill, 5) the level of predictability in the art, 6) the amount of direction provided by the inventor, 7) the existence of working examples, and 8) the quantity of experimentation needed to make or use the invention based on the content of the disclosure. In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

- 1) The breadth of the claims.
- 2) The nature of the invention,
- 3) The state of the prior art,
- 4) The level of one of ordinary skill,
- 5) The level of predictability in the art,
- 6) The amount of direction provided by the inventor,

7) The existence of working examples,

8) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

The nature of the invention: The instant invention is drawn to method of treating a disease mediated by the melanin concentrating hormone receptor or treating or preventing a melanin concentrating hormone mediated disease comprising administering to a patient in need of such treatment a therapeutically effective amount of a melanin concentrating hormone receptor antagonist compound according to claim 20.

The state of the prior art: "Melanin-concentrating hormone is effected on feeding and energy balance. Given the significance of MCH in feeding and energy balance, this discovery could have profound implications not only for the development of new anti-obesity therapies but also for treatment of other disorders, such as anorexia nervosa and weight loss resulting from loss of appetite. The receptor is widely distributed in the brain and appears to be involved in many process; thus the effect of inhibiting it would not be predictable. Further neither applicant nor the prior art provides any guidance as to how the many disease of claim 37 would be affected." (Lembo et al., Nature Cell Biology (1999), 1(5), 267-271).

The predictability in the art: It is noted that the pharmaceutical art is unpredictable, requiring each embodiment to be individually assessed for physiological activity. *In re Fisher*, 427 F. 2d 833, 166 USPQ 18 (CCPA 1970) indicates that the more unpredictable an area is, the more specific enablement is

necessary in order to satisfy the statute. In the instant case, the instantly claimed invention is highly unpredictable since one skilled in the art would recognize that in regards to the therapeutic effects, whether or not the compounds of formula of claim 1 would be useful for treating a pharmacological condition in a subject.

Amount of guidance/working examples: Applicant provides examples of the test compounds to inhibit binding of melanin concentrating hormone on Table 4, page 38. However, There is no guidance for using a therapeutically effective amount of a compound of Formula (I) could treat any and all melanin concentrating hormone related disease. Nor does applicant identify what diseases are treatable by therapeutically effective amount of a compound of Formula (I).

The breadth of the claims: The breadth of claims is drawn to method of treating a disease mediated by the melanin concentrating hormone receptor or treating or preventing a melanin concentrating hormone mediated disease comprising administering to a patient in need of such treatment a therapeutically effective amount of a melanin concentrating hormone receptor antagonist compound according to claim 20.

The quantity of undue experimentation needed: Since the guidance and teaching provided by the specification is insufficient for treating diseases associated with therapeutically effective amount of a compound of Formula (I) is efficacious, one of ordinary skill in the art, even with high level of skill, is unable to use the instant compounds as claimed without undue experimentation.

The level of the skill in the art: The level of skill in the art is high. However, due to the unpredictability in the pharmaceutical art, it is noted that each embodiment of the invention is required to be individually assessed for physiological activity by in vitro and in vivo screening to determine which compounds exhibit the desired pharmacological activity and which diseases would benefit from this activity.

Taking all of the above into consideration, it is not seen where the instant claims 35-38, for treating diseases associated with therapeutically effective amount of a compound of Formula (I) is efficacious, have been enabled by the instant specification.

5. Further, applicants are not enabled for preventing any of these diseases. The only established prophylactics are vaccines not the compounds such as present here. In addition, it is presumed that “prevention” of the claimed diseases would require a method of identifying those individuals who will develop the claimed diseases before they exhibit symptoms. There is no evidence of record that would guide the skilled clinician to identify those who have the potential of becoming afflicted.

“The factors to be considered [in making an enablement rejection] have been summarized as the quantity of experimentation necessary, the amount of direction or guidance presented, the presence or absence of working examples, the nature of the invention, the state of the prior art, the relative skill of those in

that art, the predictability or unpredictability of the art, and the breadth of the claims”, *In re Rainer*, 146 USPQ 218 (1965); *In re Colianni*, 195 USPQ 150, *Ex parte Formal*, 230 USPQ 546. 1) As discussed above, preventing diseases requires identifying those patients who will acquire the disease before occurs. This would require extensive and potentially opened ended clinical research on healthy subjects. 2) The passage spanning line 31, page 39 to line 32, page 40 lists the diseases Applicant intend to treat. 3) There is no working example of such a preventive procedure in man or animal in the specification. 4) The claims rejected are drawn to medical treatment and are therefore physiological in nature. 5) The state of the art is that no general procedure is art-recognized for determining which patients generally will become afflicted before the fact. 6) The artisan using Applicants invention would be a Board Certified physician who specialized to treat diseases with an MD degree and several years of experience. Despite intensive efforts, pharmaceutical science has been unable to find a way of getting a compound to be effective for the prevention of disorder diseases generally. Under such circumstances, it is proper for the PTO to require evidence that such an unprecedented feat has actually been accomplished, *In re Ferens*, 163 USPQ 609. No such evidence has been presented in this case. The failure of skilled scientists to achieve a goal is substantial evidence that achieving such a goal is beyond the skill of practitioners in that art, *Genentech vs. Novo Nordisk*, 42 USPQ2nd 1001, 1006. This establishes that it is not reasonable to any agent to be able to prevent disorders generally. That is, the

skill is so low that no compound effective generally against disorders has ever been found let alone one that can prevent such conditions. 7) It is well established that "the scope of enablement varies inversely with the degree of unpredictability of the factors involved", and physiological activity is generally considered to be an unpredictable factor. See *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970). 8) The claims broadly read on all patients, not just those undergoing therapy for the claimed diseases and on the multitude of compounds embraced by Formula (I).

The Examiner suggests deletion of the word "prevention".

6. *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S.

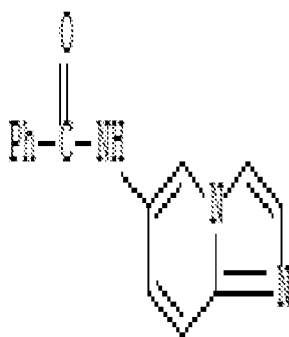
Art Unit: 1625

patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 20-21, 23, 25-28, 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi et al., Yakugaku Zasshi (1949), 69, 496-7. Takahashi et al. discloses the instant claimed compound, which from the STN search is

RN 860257-92-7

CN Benzamide, N-imidazo[1,2-a]pyridin-6-yl-



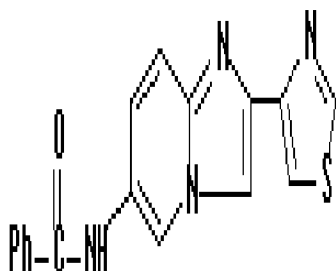
. Therefore, the instant claims are anticipated by Takahashi et al.

7. Claims 20-21, 23, 25, 27-28, 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Fisher et al., Journal of Medicinal Chemistry (1972), 15(9), 982-5. Fisher et al. discloses the instant claimed compound, which from the STN search is

RN 38923-06-7

Art Unit: 1625

CN Benzamide, N-[2-(4-thiazolyl)imidazo[1,2-a]pyridin-6-yl]-

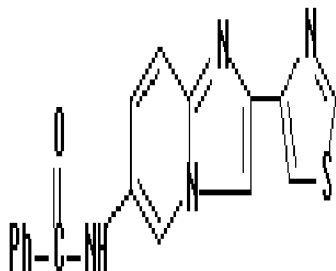


. Therefore, the instant claims are anticipated by Fisher et al.

8. Claims 20-21, 23, 25, 27-28, 30, 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Fisher et al., US 3701780. Fisher et al. discloses the instant claimed compound, which from the STN search is

RN 38923-06-7

CN Benzamide, N-[2-(4-thiazolyl)imidazo[1,2-a]pyridin-6-yl]-



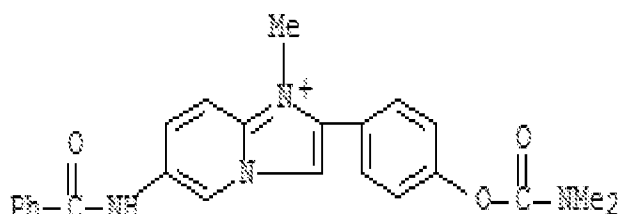
. Therefore, the instant claims are anticipated by Fisher et al.

9. Claims 20-21, 23, 25-28, 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Sundberg et al., Chemical Research in Toxicology (1993), 6(4), 506-10. Sundberg et al. discloses the instant claimed compound, which from the STN search is

Art Unit: 1625

RN 149964-95-4

CN Imidazo[1,2-a]pyridinium, 6-(benzoylamino)-2-[4-
[[[(dimethylamino)carbonyl]oxy]phenyl]-1-methyl-, chloride



• Cl⁻

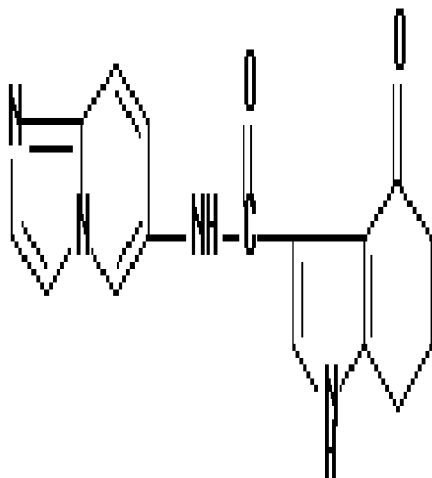
. Therefore, the instant claims are anticipated by Sundberg et al.

10. Claims 20-21, 23, 25, 27-28, 30, 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Albaugh et al., WO 2001016103. Albaugh et al. discloses the instant claimed compound, which from the STN search is

RN 329018-52-2

CN 1H-Indole-3-carboxamide, 4,5,6,7-tetrahydro-N-imidazo[1,2-a]pyridin-6-yl-4-oxo-

Art Unit: 1625

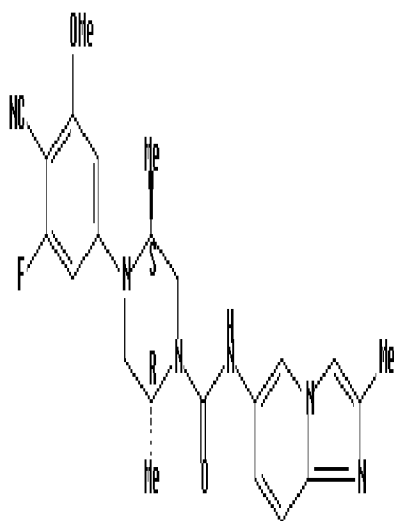


. Therefore, the instant claims are anticipated by Albaugh et al.

11. Claims 20-25, 27-28, 30, 36 are rejected under 35 U.S.C. 102(a,e) as being anticipated by Taniguchi et al., WO 2004007471. Taniguchi et al. discloses the instant claimed compound, which from the STN search is

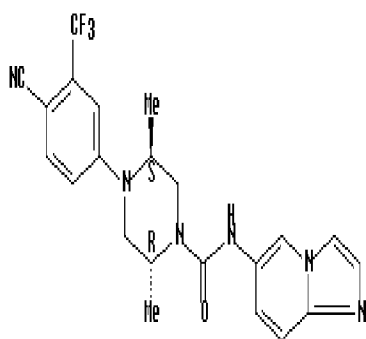
RN 648422-85-9

CN 1-Piperazinecarboxamide, 4-(4-cyano-3-fluoro-5-methoxyphenyl)-2,5-dimethyl- N-(2-methylimidazo[1,2-a]pyridin-6-yl)-, (2R,5S)-



RN 648423-14-7

CN 1-Piperazinecarboxamide, 4-[4-cyano-3-(trifluoromethyl)phenyl]-N-imidazo[1,2-a]pyridin-6-yl-2,5-dimethyl-, hydrochloride (1:1), (2R,5S)-



• HCl

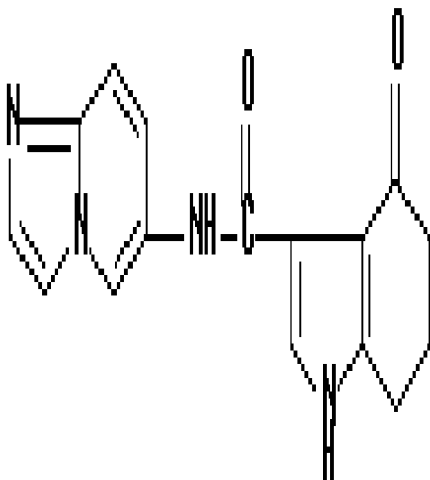
. Therefore, the instant claims are anticipated by Taniguchi et al.

12. Claims 20-21, 23, 25, 27-28, 30, 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Albaugh et al., US 7109351. Albaugh et al. discloses the instant claimed compound, which from the STN search is

RN 329018-52-2

Art Unit: 1625

CN 1H-Indole-3-carboxamide, 4,5,6,7-tetrahydro-N-imidazo[1,2-a]pyridin-6-yl-4-oxo-



. Therefore, the instant claims are anticipated by Albaugh et al.

13. **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S.

1, 148 USPQ 459 (1966), that are applied for establishing a background for

determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

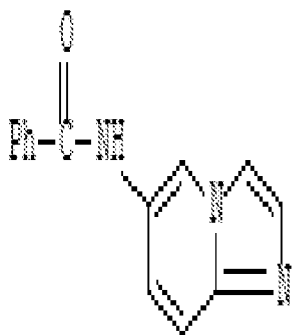
Claims 22, 24 are rejected under 103(a) as being unpatentable over Takahashi et al., Yakugaku Zasshi (1949), 69, 496-7.

Determination of the scope and content of the prior art (MPEP §2141.01)

Takahashi et al. disclosed analogous compounds, which from the STN search is

RN 860257-92-7

CN Benzamide, N-imidazo[1,2-a]pyridin-6-yl-



Ascertainment of the difference between the prior art and the claims (MPEP §2141.02)

The difference between the instant claim and the prior art compound is that the instant claim replaces one H of the prior art compound with a methyl.

Finding of prima facie obviousness-rational and motivation (MPEP §2142.2143)

One having ordinary skill in the art would be motivated to modify the compounds of Takahashi et al. to obtain the instantly claimed compounds.

A compound that differs only in molecular arrangement from the compounds disclosed in the prior art and which for which no unexpected

properties of this compound are disclosed in the specification is unpatenable, *Ex parte KRUEGER AND HAYES*, 121 USPQ 420, *In re NORRIS*, 84 USPQ 458, *In re Hass* 60 USPQ 552, which found a *prima facie* case of obviousness of 1-chloro-1-nitrobutane over 1-chloro-1-nitroisobutane taught in the prior art, *Ex parte Ulliyot*, 103 USPQ 185, which found a *prima facie* case of obviousness of 2-oxo-quinolines over a 1-oxo-isoquinoline taught in the prior art, *In re FINLEY*, 81 USPQ 383 , which found a *prima facie* case of obviousness of 2-ethyl hexyl salicylate over octyl salicylate taught in the prior art.

Compounds that differ only by the presence or absence of an extra methylene group or two are homologues. Homologues are of such close structural similarity that the disclosure of a compound renders *prima facie* obvious its homologues. The homologue is expected to be prepared by the same method and to have generally the same properties. This expectation is then deemed the motivation for preparing homologues. Of course, these presumptions are rebuttable by the showing of unexpected effects, but initially, the homologues are obvious even in the absence of a specific teaching to add or remove methylene groups. See *In re Wood*, 199 USPQ 137; *In re Hoke*, 195 USPQ 148, *In re Lohr*, 137 USPQ 548; *In re Magerlein*, 202 USPQ 473; *In re Wiechert*, 152 USPQ 249; *Ex parte Henkel*, 130 USPQ 474; *In re Fauque*, 121 USPQ; *In re Druey*, 138 USPQ 39

14.***Claim Objections***

Claims 29, and 31-33 are objected to as being dependent upon a cancelled base claim 20, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Niloofar Rahmani whose telephone number is 571-272-4329. The examiner can normally be reached on Monday through Friday from 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Andres, can be reached on 571-272-0867. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/NILOOFAR RAHMANI/

07/23/2008

/Janet L. Andres/

Supervisory Patent Examiner, Art Unit 1625